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Application Number	09/678366
Filing Date	10/03/2000
First Named Inventor	Ming Xi
Group Art Unit	1762 2827
Examiner Name	Unassigned PARNEKE
Attorney Docket Number	4714P1/AMI-11

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()H,	AJ	4,058,430		Sun	tola et al.	11-15	1977	├──	Figures Appear	
H	AK	4,389,973	1.	Sun	tola et al.	06-28		 		
1st	AL	4,413,022	 	Sun	tola et al.	11-01-				
126	MA	4,767,494			ayashi et al.	08-30			SECENT.	
726	AN	4,806,321		Nich	izawa et al			<u> </u>	-OCIVE	7
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112	AP	4.845,049	 		akawa				- 0 4 2002	_
74	AQ	4,859,627	 			07-04-			- LUUJ	_
THE	AR	4,861,417			akawa	08-22-			ASSA	
(7) -	AS	4,876,218	<u> </u>		nizuki et al.	08-29-			∨ / /∩∧ -	
11/2	AT				a et al.	10-24-	1989			_
	AU	4,993,357		Scho	XZ Z	02-19-1	1991			
1 to		5,082,798		Arim		01-21-1	1992			
All	AV	5,130,269		Kitah	ara et al.	07-14-1				
15	AW	5,166,092		Moch	izuki et al.	11-24-1				
16	AX	5,225,366		Yode	r	07-06-1				
AL.	AY	5,250,148		Nishi	zawa et al.	10-05-1				
1745	AZ	5,256,244		Acke		10-26-1				
11	ВА	5,270,247	 		ma et al.		-			
1/11	BB	5,278,435			love et al.	12-14-1				_
	BC	5,281,274	 	Yode		01-11-1				_
7-41		9,201,211				01-25-1	994			_
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¹Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁶Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. Substitute for form 1449B/PTO Complete if Known **Application Number** 09/678,266 LEORMATION DISCLOSURE Filing Date 10/03/2000 **EMENT BY APPLICANT First Named Inventor** Ming Xi **Group Art Unit** िधुइंट as many sheets as necessary) **Examiner Name** Unknown-4 Sheet of Attorney Docket Number 4714P1/AMI-11

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2		Klaus et al. Atomically controlled growth of tungsten and tungsten nitride using	
.676	CN	sequential surface reacions, Applied Surface Science, pp. 479-491(2000).	
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First Named Inventor

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02	A1	4,486,487	12/04/84	Skarp	428		216		04/25/19	33
ME	A2	4,829,022	05/09/89	Kobayashi et a	l. 437		107		12/09/19	36
1/1/3	А3	4,834,831	05/30/89	Nishizawa et a	l. 156		611		ø9/04/19	37
1. 176	A4	4,838,983	06/13/89	Schumaker et al.	156		613	\overline{A}	03/18/19	38
1/4	A5	4,838,993	06/13/89	Aoki et al.	156		643		12/03/19	37
At	A6	4,859,625	08/22/89	Nishizawa et a	l. 437		81		11/20/19	87
1/16	A7	4,927,670	05/22/1990	Erbil	427		255.3		06/22/19	38
115	A8	4,931,132	06/05/90	Aspnes et al.	156		601		10/07/19	B8
1/1/5	A9	4,960,720	10/02/90	Shimbo	437		105		08/24/1987	
116	A10	4,975,252	12/04/90	Nishizawa et a	l. 422		245		05/26/19	89
The	A11	5,013,683	05/07/91	Petroff et al.	437		110		01/23/19	89
150,	`A12	5,085,885	02/04/92	Foley et al.	477		38		09/10/19	90
181	A13	5,091,320	02/25/92	Aspnes et al.	437		8		06/15/19	90
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121	B1	01/66832 A2	09/13/2001	wo	C30B	16	6/44			X
246	B2	01/40541 A1	06/07/2001	wo	C23C	16	6/40			X
116	- B3	01/36702 A1	05/25/2001	wo	C23C	16	6/00			X
116	B4	01/29893 A1	04/26/2001	wo	HD1L	2	1/768			X
116	B5	01/29891 A1	04/26/2001	wo	H01L	2.	1/768			X
OTHER A	RT			1			·			
*Examiner		Including Author, T								
15	C1	Hultman, et al., "Revi Metalikunde, 90(10) (Oct. 1999), pp. 803	3-813.					\	.
1/1	-C2	Klaus, et al., "Atomic Surface Review & Le	Layer Deposition of the s. 6(\$&4) (1999)	t SiO ₂ Using Catalyz) pp. 485-448.	ed and Ur	ncataly	zed Self-L	imitii	ng Surface	Heactions",
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A I	A14	5,246,536	09/21/93	Nishizawa et al	1.	156	610	7	3//10/198	39
1206	A15	5,254,207	10/19/93	Nishizawa et al	1.	156	601	7	1/30/199	92
125	A16	5,296,403	03/22/94	Nishizawa et al	1.	437	133	1	0/23/199	92
24	A17	5,311,055	05/10/94	Goodman et al.		257	593	7	1/22/199) 1
1746	A18	5,316,615	05/31/94	Copel		117	95	1	3/09/199	93
114	A19	5,348,911	09/20/94	Jurgensen et a	1.	117	91	7	04/26/199	93
111	A20	5,374,570	12/20/94	Nasu et al.		437	40	7	08/19/19	93
1/26	A21	5,438,952	08/08/1995	Otsuka		117	84	7	01/31/199	94
/AL	A22	5,439,876	08/08/95	Graf et al.		505	447	1	08/16/1993	
MA.	A23	5,441,703	08/15/95	Jurgensen		422	129	1	03/29/19	94
1/26	A24	5,443,647	08/22/95	Aucoin et al.		118	723 ME	1	07/11/19	94
//A	A25	5,455,072	10/03/95	Bension et al.		427	255.7	1	11/18/19	92
1.118	A26	5,469,806	11/28/95	Mochizuki et al		117	97	1	08/20/19	93
10	A27	5,503,875	04/02/96	lmai et al.	T	427	255.3	1	03/17/19	94
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1/6	B7	01/27347-A1	04/19/2001	wo	С	23C	16/44			Х
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<i>7/7</i> /	C4	George et al., "Surfac	co/Chamistry for Al	omic Layer Grewth",	, J. I			1996), ppr 1312	(1-131. 7
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M	A28	5,521,126	05/28/96	Okamura et al		437	235		06/22/199	4
196	A29	5,527,733	06/18/96	Nishizawa et a	al.	437	160	1	02/18/199	4
M	A30	5,540,783	07/30/96	Eres et al.		118	725		05/26/199	4
11/4	A31	5,601,651	02/11/97	Watabe		118	715		12/14/199	4
194	A32	5,616,181	04/01/97	Yamamoto et al		118	7/23 EF	3	11/21/199	5
114	A33	5,641,984	06/24/97	Aftergut et al.		257	433		08/19/199	4
MA	A34	5,644,128	07/01/97	Wollnik et al.		250	251		08/25/199	4
DA	A35	5,707,880	01/13/98	Aftergut et al.		437	3		01/17/199	7
1 Bt	A36	5,747,113	05/05/98	Tsai		427	255.5		07/29/199	6
115	A37	5,749,974	05/12/98	Habuka et al.		118	725		07/13/199	5
/Ath	A38	5,796,116	08/18/98	Nakata et al.		257	66		07/25/199	5
7 146	A39	5,807,792	09/15/98	llg et al.		438	758		12/18/199	6
///	A40 .	5,830,270	11/03/98	McKee et al.		117	106		08/05/199	6
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126	B10	00/79576 A1	12/28/2000	wo	Н	10;1L	21/205			X
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1/4	C5	George, et al., "Ato sequence chemistry	mic layer controll f", Appl. Surf. So	led deposition of S ci., Vol. 82/83 (1994)	iO ₂ 4), p	and Al ₂ 0 p. 460~	O₃ using AB/ 467.	4Β	binary read	tion
M	C6	Wise, et al., "Diethy Sympo.) Proc., Vol.)3	ldiethoxysilane a 34/1994), pp. 3	as a new orecursor 7-43.	r for	SiO₂ gr	owth on silic	on",	Mat. Res. S	Soc.
Examiner		1 tain	7 for	ul		Date C	Considered		18/2	
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PTO Form 144 LIST OF PATE	49 m	•	ent and Trade	mark Office	Dock	et No			Serial N	10.
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Examiner		Document Number	Issue Date	Applicant(s) Name	Class		Subclas		Filing Date	
AL A	41	5,835,677	11/10/98	Li et al.	392		401	1	10/03/19	96
A A	42	5,855,675	01/05/99	Doering et al.	118		719	(03/03/19	97
Y A	43	5,858,102	01/12/99	Tsai	118		719	7)2/14/19	98
A.	44	5,879,459	03/09/99	Gadgil et al.	118		715		08/29/19	97
AL A	45	5,904,565	05/18/1999	Nguyen, et al.	438		687	7	07/17/19	97
A.	46	5,916,365	06/29/99	Sherman	117		92		08/16/19	96
Mar A	47	5,923,056	07/13/99	Lee et al.	257	,	192		03/12/19	98
A A	48	5,923,985	07/13/99	Aoki et al.	438		301	7	01/14/19	97
A.	49	5,925,574	07/20/99	Aoki et al.	437		31	(04/10/19	92
A A	50	5,942,040	08/24/99	Kim et al.	118		726	1	08/27/19	97
/ / A!	51	5,947,710	09/07/1999	Cooper, et al.	418		63	- (06/16/19	97
A!	52	5,972,430	10/26/99	DiMeo, Jr. et al	. 427		255.32	1	11/26/19	97
A!	53	6,001,669	12/14/99	Gaines et al.	438		102	7	07/21/19	92
A!	54	6,174,377	01/16/2001	Doering, et al.	118		729	7	01/04/19	99
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xaminer		Document	Date	Country	Class	Sı	bclass		Transi	ation
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/// B	13	00/54320 A1	09/14/2000	wo	HOIL	21	/44			Х
//// B	14	00/16377 A2	03/23/2000	wo	HC1L					Х
//// B	15	00/15881 A2	03/23/2000	wo	СЗОВ	\top	 			Х
THER ART							•			
xaminer		Including Author,	Title, Date, Per	rtinent Pages, Etc.			·			
De c	7			le thin films and over /ol. B41 (1996), pp. 2		atom	ic layer e	epita	cy for adv	anced
C	В			l TiN and Al₂Q₃ films uary 1999y, pp. 7-9.	deposite	d by a	atomic la	yer d	eposition'	, Chemic /
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U.S. Depart	ment o	f Commerce, Pate	ent and Tradem	ark Office		Docke	t No			Serial	A A
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LIST OF PA	TENTS	S AND PUBLICA				Applic	ant	_		14	12/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/
				IA		Xi, et a	al.			<i>></i>	1 72
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U.S. Patent	Docur	nents	PADEMAN	- OFFICE			-				
*Examiner Initial		Document Number	Issue Date	Applicant(s) Name		Class		Subclas		Filing Dat Appropria	
	A55	6,174,809	01/16/2001	Kang, et al.		438		682		12/15/19	98
///	A56	6,203,613	03/20/2001	Gates, et al.		117		104		10/19/19	99
	A57	6,207,302	03/27/2001	Sugiura, et al.		428		690		03/02/19	98
	A58	6,248,605	06/19/2001	Harkonen, et al.		438		29		06/02/19	99
	A59	6,270,572	08/07/2001	Kim, et al.		117		93		08/09/19	99
A	A60	6,287,965	09/11/2001	Kang, et al.		438		648		02/23/20	00
Att	A61	6,291,876	09/18/2001	Stumborg, et al.		257		632		08/20/19	98
MAT,	A62	6,305,314	10/23/2001	Sneh, et al.		118		723 R		12/17/1999	
PATA	A63	6,306,216	10/23/2001	Kim, et al.		118		725		07/12/20	00
PH	A64	6,316,098	11/13/2001	Yitzchaik, et al.		428		339		03/23/19	99
IA	^A65	2001/0000866	05/10/2001	Sneh, et al.		118		723 R		11/29/20	00
Phy	A66	2001/0009140	07/26/2001	Bondestam, et al.		118		725		01/25/20	01
THE	A67	2001/0011526	08/09/2001	Doering, et al.		118		729		01/16/20	01
Foreign Pa	tent Do	cuments									
Examiner		Document	Date	Country	CI	ass	Su	bclass		Transl	ation
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	B16	99/41423 A2	08/19/1999	wo	C	23C	<u> </u>	<u> </u>			X
	B17	96/18756 A1	06/20/1996	wo	C	23C	16	/08		į	X
OTHER AR	T										
Examiner nitial		Including Author,	Title, Date, Pertir	nent Pages, Etc.							
M	C9		.: Advanced Inter	n of TiN thin films I connects and Con 98), pp. 337-342.							
W.	C10	Klaus, et al., "Ato Sacrificial Strippir 1999).	mic Layer Depos Officeaction, "Th	ition of Tungsten u in Solid Films 360	isin((20	g Sequ 00), Pa	entia ges	l Surface 145 – 15	Ch 3, (emistry wi	ith a Nov. 16,
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U.S. Depart	ment o	f Commerce, Pate	ent and Trade	mark Office		Docke	t No.		Serial No.	
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				Tr.		Xi, et a	ıl.			APD.
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M	-A68	2001/0031562	10/18/2001	Raaijmakers al.	, et	438	770	1	O2/22/20	001
VIII	A69	2001/0034123	10/25/2001	Jeon, et al.		438	643		04/06/20	001.
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	A73									
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Foreign Pa	tent Do	ocuments								
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115	B18	96/17107 A1	06/06/1996	wo	<u> </u>	28C	16/44			X
	B19	93/02111 A1	02/04/1993	wo	C	COBF	4/78			X
	B20	0 442 490 A1	08/21/1991	EP	<u> </u>	зрв	25/02			X
1/1	B21	0 344 352 A1	12/06/1989	EP	_ }	10 L	39 24			X
OTHER AR	T					·				
Examiner nitial		Including Author,	Title, Date, Pe	rtinent Pages, Etc	•					
Mt	C11		Min, et al., "Metal-Organic Atomic-Layer Deposition of Titanium-Silicon-Nitride Films", Applied Physics Letters, American Inst. Of Physics, Vol 75(11) (Sept. 13, 1999).							
	⁻ C12	Martensson, et al (5eb. 1, 1997), p	Atomic Laye 45-50.	r Epitaxy of Copp	er on	Tantalu	m", <i>Chemica</i>	ı val	oor Depo	sition, 3(1)
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Foreign Pa	tent Do	ocuments									
Examiner		Document Number	Date	Country	C	lass	Sı	ipclass	-	Trans	lation NO
1	B22	62-091495 A	04/25/1987	JP	С	30 B	25	5/02			Х
	B23	60-065712 A	04/15/1985	JP	C	01B	33	3/113	,		X
//	B24	03-048421	03/01/1991	JP.	Н	O L	21	1/302		/	X
M	B25	03-286531	12/17/1991	JP	Н	01L	21	1/316	1		Х
	B26	04-031396 A	02/03/1992	JP	c	30B	25	5/14	/		X
	B27	06-291048	10/18/1994	JP	Н	OL	21	1/205 /			X
	B28	08-264530	10/11/1996	JP	Н	01L	21	1/8205			X
1/1/	B29	11-269652	10/05/1999	JP	c	23C	16	5/44/			X
OTHER AR	T	.			1	-	٠	-1-1-	J		
*Examiner		Including Author,	Title, Date, Pe	rtinent Pages, Etc.							
All	C13	Ritala, et al. "Ator 1995), pp. 2731-7		xy Growth of TiN Th	nin F	Films", J	I. Ele	ectroche	m. S	Soc., 142(8	3) (Aug.
	C14										
/1002	C15	Lee, "The Preparation of Titanium-Based Thin Film by CVD Using Titanium Chlorides as Precursors", Chemical Vapor Deposition, 5(2) (Mar. 1999), pp. 69-73.									
It	C16	Martensson, et al Tetramethyl-3, 5- 2931.	., "Atomic Laye Heptanedion A	r Epitaxy of Copper TE/H2 Process", J.	, Gr <i>Ele</i> e	owth & ctrocher	Sele m. S	ectivity in oc. ,145(the (8) (Su (II)-2,2 Aug. 1998	2.6,6-), pp. 2926
Examiner		and !!	tend	e		Date C	Cons	sidered		11801	7
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U.S. Department of Commerce, Patent and Trademark Office Serial No. Docket No. (PTO Form 1449 modified) AMAT/4714.P1 09/678,266 LIST OF PATENTS AND PUBLICATIONS CITED BY APPLICANT **Applicant** Xi, et al. (Use several sheets if necessary) Filing Date Examiner Unknown October 03, 2000 **U.S. Patent Documents** *Examiner **Document** Filing Date If Issue Class Subclass Initial Number Appropriate Date **A81 A82 A83** A84 **A85 A86 A87 A88 Foreign Patent Documents** *Examiner Document Date Country Class **Subclass Translation** Initial Number YES ŃΟ Х **B30** 53/34 2001-62244 03/13/2001 JP BQ1D **B31** Hd1L 21/3205 X 198 20 147 07/01/1999 DE DE Hd1L X **B32** 196 27 017 21/283 01/09/1997 Х **B33** 2 626 110 07/21/1989 FR HOIL 39/24 **B34** CZBC 16/00 X FR 2 692 597 12/24/1993 X 16/44 B35. 05/02/2001 **GB** C2BC 2 355 727 *Examiner Including Author, Title, Date, Pertinent Pages, Etc. Initial C17 Min, et al.,"Chemical Vapor Deposition of Ti-Si-N Films with Alternating Source Supply", Mat., Res. Soc. Symp. Proc., Vol. 564 (Apr. 5, 1999), pp. 207-210 C18 Bedair, "Atomic layer epitàxy deposition processes", J. Vac. Sci. Techol. 12(1) (Jan/Feb 1994) C19 Yamaga, et al., "Atomic layer epitaxy of ZnS by a new gas supplying system in a low-pressure metalorganic vapor phase editaxy", J. of Crystal Growth 117 (1992), pp. 152-155 Elam, et al., "Nucleation and growth during tungsten atomic layer deposition on SiO2 surfaces," Thin Solid Filips 386 (2001) Pages 41 – 52, (Accepted Dec. 14, 2000). C20 Examiner **Date Considered** *EXAMINER: Initiat if reference considered, whether ownot citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant.

U.S. Depar	tment c	of Commerce, Pate	ent and Trademar	k Office [Docket No.		Serial No.
PTO Form					APPM/4714	4.P1	09/678,266
SUPPLEMI CITED BY		LIST OF PATEN	TS AND PUBLIS	ARIONS /	Applicant		Confirmation No
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Examiner nitial		Document Number	Issue Date	Applicant(s) 170	Q lass	Subclass	Filing Date If Appropriate
(A)	A1	4,813,846	03/21/89	Helms	414	744.1	04/29/87
ME	A2	4,917,556	04/17/90	Stark et al.	414	217	05/26/89
OH	А3	4,951,601	08/28/90	Maydan, et al.	118	719	06/23/89
A	A4	5,000,113	03/19/91	Wang et al.	118	723	12/19/86
Mt	A5	5,186,718	02/16/93	Tepman et al.	29	25.01	04/15/91
ME	A6	5,205,077	04/27/93	Wittstock	51	165 R	08/28/91
PAT	A7	5,234,561	08/10/93	Randhawa et al.	204	192.38	0,8/25/88
M	A8	5,259,881	11/09/93	Edwards, et al.	118	719	05/17/91
1075	A9	5,286,296	02/15/94	Sato et al.	118	719	01/09/92
ME	A10	5,609,689	03/11/97	Kato et al.	118	719	06/03/96
/IE	A11	5,667,592	09/16/97	Boitnott et al.	118	719/	04/16/96
M	A12	5,674,786	10/07/97	Turner et al.	437	225	06/05/95
ME	A13	5,695,564	12/09/97	Imahashi	118	719	08/03/95
1 PE	A14	5,730,801	03/24/98	Tepman et al.	118	719	08/23/94
THE	A15	5,788,447	08/04/98	Yonemitsu et al.	414	217	08/05/96
19t	A16	5,788,799	08/04/98	Steger, et al.	156	345	06/11/96
(HE	A17	5,801,634	09/01/98	Young et al.	340	635	09/08/97
(Al	A18	5,856,219	01/05/99	Naito et al.	438	241	08/18/97
M	A19	5,866,213	02/02/99	Foster et al.	427	573	07/19/97
196	A20	5,866,795	02/02/99	Wang et al.	73	1.36	03/17/97
AL	A21	5,882,165	03/16/99	Maydan et al.	414	217	09/10/97
YH,	A22	5,882,413	03/16/99	Beaulieu et al.	118	719	07/11/97
104	A23	5,928,389	07/27/98	Jevtic	29	25.01	10/21/96
xaminer	1	By H	tank		Date Consi	dered	6/2

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CITED BY	MPPLI	MITI	011	• .	Kori, et al.		Unknown
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*Examiner Initial		Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Date If Appropriate
(OH	A24	6,051,286	04/18/00	Zhao et al.	427	576	08/22/97
Tot	A25	6,062,798	05/16/00	Muka	414	416	06/13/96
ME	A26	6,071,808	06/06/00	Merchant et al.	438	633	06/23/99
MZ	A27	6,084,302	07/04/00	Sandhu	257	751	12/26/95
TA6	A28	6,086,677	07/11/00	Umotoy et al.	118	715	06/16/98
1 DE	A29	6,110,556	08/29/00	Bang, et al.	428	.64.1	10/17/97
1112	A30	6,117,244	09/12/00	Bang, et al.	118	715	03/24/98
Pat	A31	6,140,237	10/31/00	Chan et al.	438	687	04/19/99
1172	A32	6,140,238	10/31/00	Kitch	438	687	04/21/99
M-	A33	6,143,659	11/07/00	Leem	438	688 /	08/27/98
(A)	A34	6,144,060	11/07/00	Park et al.	257	310	07/31/98
1972	A35	6,158,446	12/12/00	Mohindra et al.	134	25.4	09/04/98
OR	A36	6,206,967	03/27/01	Mak, et al.	118	666	06/14/00
107	A37	6,271,148	08/07/01	Kao et al.	438	727	10/13/99
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(A)2	B1	58-098917	06/13/1983	14 6 8 B	HQ1L	217205			
(07t	B2	58-100419	06/15/1983	JP	HOIL	21 20	\boxtimes		
1032	В3	61-035847	02/20/1986	JP	B01J	19/08	Ø		
1At	B4	61-210623	09/18/1986	JP	HO1L	21/205	\boxtimes		
M	B5	62-069508	03/30/1987	JP	HOIL	21/203			
192	B6	62-141717	06/25/1987	JP	HOIL	21/203	\boxtimes		
(BE	B7	62-167297	07/23/1987	JP	C30B	29/40	\boxtimes		
(A)	B8	62-171999	07/28/1987	JP	C30B	29/40	\boxtimes		
At.	В9	62-232919	10/13/1987	JP	HOLL	21/205			
197	B10	63-062313	03/18/1988	JP	H0 L	21/203	\boxtimes		
1/12	B11	63-085098	04/15/1988	JP	C30B	21/40	\boxtimes		
1112	B12	63-090833	04/21/1988	JP	H0 L	21/365	\boxtimes		
m	B13	63-222420	09/16/1988	JP	HOIL	21/205/	\boxtimes		
PAZ	B14	63-222421	09/16/1988	JP	HQ1L	21/205			
THE	B15	63-227007	09/21/1988	JP	HQ1L	2/1/2/05	\boxtimes		
M.	B16	63-252420	10/19/1988	JP	НФ1L	21/205			
192	B17	63-266814	11/02/1988	JP	HD1L /	21/205			
1117	B18	64-009895	01/13/1989	JP	СЗОВ	29/40			
1072	B19	64-009896	01/13/1989	JP	СЗОВ	29/40	\boxtimes		
199	B20	64-009897	01/13/1989	JP	СЗОВ	29/40	☒		
1992	B21	64-037832	02/08/1989	JP	H01L	21/205	\boxtimes		
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111	B23	64-082617	03/28/1989	JP	H01L	21/205	Ø		
M	B 24	64-082671	03/28/1989	JP	H01L	29/78	\\X		
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Foreign Pa	tent Do	ocuments		-	APR 1 5 2002				
*Examiner		Document	Date		Country	Class	Subclass	Translati	ion
Initial		Number			TC 1700			YES	NO
10t	B25	64-082676	03/28/1	989	JP	H01L	29/80		
M	B26	64-090524	04/07/1	989	JP ·	HOIL	21/205	\boxtimes	
Ist	B27	01-103982	04/21/1	989	JP	C30B	23/08		
"Oft	B28	01-103996	04/21/1	989	JP	C30B	29/40	\boxtimes	
At	B29	01-117017	05/09/1	989	JP	H01L	21/203		
112	B30	01-143221	06/05/1	989	JP	HD1L	21/314		
Bt	B31	01-143233	06/05/1	989	JP	H01L	21/76		
Oft	B32	01-154511	06/16/1	989	JP	HØ1L	21/20	\boxtimes	
116	B33	01-236657	09/21/1	989	JP	HØ1L	29/80	\boxtimes	
111	B34	01-245512	09/29/1	989	JP	Hd1L	2 1/205	· 🛛	
Mo	B35	01-264218	10/20/1	989	JP	Hd1L /	21/205	\boxtimes	
THE	B36	01-270593	10/27/1	989	JP	C30B/	25/02	\boxtimes	
1/2	B37	01-272108	10/31/1	989	JP	HQ1E	21/203	×	
126	B38	01-290221	11/22/1	989	JP	HQ1L	21/205	Ø	
196	B39	01-290222	11/22/1	989	JP	HQ1L	21/205	\boxtimes	
(At	B40	01-296673	11/30/1	989	JP	HQ1L	29/88		
1/1/6	B41	01-303770	12/07/1	989	JP	HQ1L	39/24	Ø	
1/1/6	B42	01-305894	12/11/1	989	JP .	C30B	23/08		
M	B43	01-313927	12/19/1	989	JP	H01L	21,205	\boxtimes	
THE	B44	02-012814	01/17/1	990	JP	HO1L	21 205	\boxtimes	
At	B45	02-014513	01/18/1	<u></u> 990	JP .	HC1L	21/205	. 🛛	
1125	B46	02-017634	01/22/1	990	JP	HQ1L	21/225		
Mata	B47	02-063115	03/02/1	990	JP	HØ1L	21/20	\boxtimes	
1/1/	B48	02-074029	03/14/	1990	JP	HØ1L	21/205		
Examiner	11	will of	u b	7		Date Consi	dered	8/6/2	
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant.									

U.S. Depart	ment o	f Commerce, Patent	and Trademai	rk Office	Docket No.		Serial No.	
(PTO Form	1449 n	nodified)			APPM/4714	1.P1	09/678,266	
SUPPLEME CITED BY		LIST OF PATENTS	AND PUBLIC	ATIONS	Applicant		Confirmation No.:	
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*Examiner		Document	Date	Country PR 1 5	2001 <u>2</u> 255	Subclass	Translati	on
Initial		Number		TC 17	ZOO		YES	NO
att	B49	02-074587	03/14/1990	JP 10 11	СВОВ	23/08	\boxtimes	
It	B50	02-106822	04/18/1990	JP	но1в	13/00		
1	B51	02-129913	05/18/1990	JP	HD1L	21/205	Ø	
M	B52	02-162717	06/22/1990	JP	HD1L	21/20	,⊠ →	
At	B53	02-172895	07/04/1990	JP	C30B	29/36		
125	B54	02-196092	08/02/1990	JP	С30В	25/14		
At	B55	02-203517	08/13/1990	JP	HOIL	21/205	\boxtimes	
LIT	B56	02-230690	09/13/1990	JP /	но5В	33/10		
Han	B57	02-230722	09/13/1990	JP	H0 L	21/205	\boxtimes	
at	B58	02-246161	10/01/1990	JP/	H01L	29/784	\boxtimes	
(0)7	B59	02-264491	10/29/1990	JP	H01S	3/18	\boxtimes	
195	B60	02-283084	11/20/1990	JP	H01S	3/18	⊠	
1 At	B61	02-304916	12/18/1990	JP	H01_	21/205	Ø	
TATE	B62	03-019211	01/28/1991	JP	H01L	21/205		
aff	B63	03-022569	01/30/1991	JP	H0 L	29/804	×	
(At	B64	03-023294	01/31/1991	JP	C30B	25/18		
MZ	B65	03-023299	01/31/1991	JP	СЗОВ	29/40	Ø	
BE	B66	03-044967	02/26/1991	JP	HOIL	29 48	\boxtimes	
(A)	B67	03-070124	03/26/1991	JP	HQ1L	21/205		
MA7-	B68	03-185716	08/13/1991	JP	H01L	21/205	\boxtimes	
THE	B69	03-208885	09/12/1991	JP	C30B	23/02	\boxtimes	
CAT	B70	03-234025	10/18/1991	JP	HOIL	21/318	\boxtimes	
at	B71	03-286522 τ	12/17/1991	JP	HOIL	21/205		
ME	B72	04-031391/	02/93/1992	JP	C30B	23/08	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant.								

U.S. Depart	ment o	of Commerce, Patent	and Tradema	rk Office	Docket No.		Serial No.	
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SUPPLEME CITED BY		LIST OF PATENTS	AND PUBLIC	ATIONS	Applicant		Confirmatio	
				30	Kori, et al.		Unknown	
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Foreign Pa	tent D	ocuments	TRAL	APR 1 5 2007			.	٠.
*Examiner Initial		Document Number	Date	Country	Class	Subclass	Translat	ion
1111(iai		Number		TC 1700	-		YES	NO
115	B73	04-031396	02/03/1992	JP	С30В	25/14	\boxtimes	
LIT	B74	04-100292	04/02/1992	JP	HOIS	3/18		
rott	B75	04-111418	04/13/1992	JP	HØ1L	21/205	\boxtimes	
·(1)t	B76	04-132214	05/06/1992	JP	HØ1L	21/205	\boxtimes	
COL	B77	04-132681	05/061992	JP	Свов	25/14	\boxtimes	
THE	B78	04/151822	05/25/1992	JP	HD1L	21/205	\boxtimes	
10-1	B79	04-162418	06/05/1992	JP	H01L	21/205	\boxtimes	
(0tt	B80	04-175299	06/23/1992	JP	Свов	29/68	\boxtimes	
(At	B81	04-186824	07/03/1992	JP	H01L	21/205	\boxtimes	
LAT	B82	04-212411	08/04/1992	JP	H01L	21/203	\boxtimes	
(It	B83	04-260696	09/1/6/1992	JP	C80B	29/40	\boxtimes	
LIX	B84	04-273120	09/29/1992	JP	H01L	21/20	\boxtimes	
(At	B85	04-285167	10/09/1992	JP	C53C	14/54	\boxtimes	
az	B86	04-291916	10/16/1992	JP	HD1L	21/205	\boxtimes	
· TAL	B87	04-325500	11/13/1992	JP	C30B	33/00	\boxtimes	
MZ	B88	04-328874	11/17/1992	JP	H01L	29/804	\boxtimes	
SP	B89	05-029228	02/05/1993	JP	H01L	21/205	×	
/HL	B90	05-047665	02/26/1993	JP	HD1L	21/205	\boxtimes	
Utt	B91	05-047666	02/26/1993	JP	HD1L	21/205		
At	B92	05-047668	02/26/1993	JP	HD1L	21/205	\boxtimes	
AL	B93	05-074717	03/26/1993	JP	HD1L	21/205		
(At	B94	05-074724	03/26/1993	JP	HD1L _	21/205	×	
CAZ	B95	05-102189	04/23/1993	JP	HO1L	21/336	. 🛛	
ME	B96	05-160152	06/25/1993	JP	HQ1L	21/336	, Ø	
Examiner	1	with the	nle		Date Consid	dered	16/2	
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U.S. Depart	. Department of Commerce, Patent and Trademark Office						Serial No.		
(PTO Form	1449 mo	dified)		1917	QQ PPM/4714	4.P1	09/678,266	;	
SUPPLEMI CITED BY		IST OF PATENTS	AND PUBLIC	SACUTA	Applicant		Confirmation No::		
ON ED DI	ALL EIGH		AP	R 1 1 2002 (S)	Kori, et al.		Unknown		
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	Ex	caminer Unknow	wn 🥀	MADEMARKO	October 30	, 2000	1762	マナ	
Foreign Patent Documents									
*Examiner Initial		Document	Date	Country	Class	Subclass	Translat	ion	
Imiliai		Number			_		YES	NO	
11t	B97	05-175143	07/13/1993	JP	HOTIL	21/205			
XXX	B98	05-175145	07/13/1993	JP	HOIL	21/205	\boxtimes		
fft	B99	05-182906	07/23/1993	JP	HOIL	21/20	\boxtimes		
1/1	B100	05-186295	07/27/1993	JP	СЗРВ	25/02	×		
(At	B101	05-206036	08/13/1993	JP	HOIL	21/205	\boxtimes		
AL	B102	05-234899	09/10/1993	JP	H0 L	21/205	×		
1/12	B103	05-235047	09/10/1993	JP	HOIL	21/338	\boxtimes		
THE	B104	05-251339	09/28/1993	JP	H01L	21/20	×		
At	B105	05-270997	10/19/1993	JP	СЗФВ	29/68	\boxtimes		
1.44	B106	05-283336	10/29/1993	JP	H0 L	21/20	\boxtimes		
The	B107	05-291152	11/05/1993	JP	HOIL	21/205	\boxtimes		
115	B108	05-304334	11/16/1993	JP_	HOIL	3/18	\boxtimes		
At	B109	05-343327	12/24/1993	JP \	HOIL	21/205	\boxtimes		
THE	B110	05-343685	12/24/1993	JP \	HOIL	29/784	\boxtimes		
At	B111	06-045606	02/18/1994	JP \	HOIL	29/784	\boxtimes		
THE	B112	06-132236	05/13/1994	JP \	HOIL	21/205	\boxtimes		
1/47	B113	06-177381	06/24/1994	JP \	H01L	29/784	\boxtimes		
1/1/1	B114	06-196809	07/15/1994	JP	HOIS	3/18	\boxtimes		
M	B115	06-222388	08/12/1994	JP	G02F	1/136	\boxtimes		
THE	B116	06-224138	08/12/1994	JP	HOIL	21/205	\boxtimes		
At	B117	06-230421	08/19/1994	JP	G02F	1/136	\boxtimes	·	
At	B118	06-252057	09/09/1994	JP	HOIL	21/205	\boxtimes		
There	B119	07-070752	03/14/1995 (JP	C23C	16/40	\boxtimes		
1/HE	B120	07-086269	03/13/1995	ŲΡ	HO L	21/314	\ X		
Examiner		puilt for	will		Date Consi	dered (16/2		
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U.S. Depart	ment of (Commerce, Pa	t and Tradema	rk Office	Doc. No.		Serial No.	sneed
(PTO Form	1449 mo	edified)			APPM/4714	4.P1	09/678,266	;
		IST OF PATENTS	AND PUBLIC	MIGNS	Applicant		Confirmation No.:	
CITED BY	APPLICA	AN I	APR	11202 8	Kori, et al.		Unknown	
(Use severa	al sheets	if necessary)	E		Filing Date		Group	/
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Foreign Pa	tent Doc	uments		RECEN	/ED		1	
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<u>~~~</u>				TC 170) Φ _{Ηφ1L}	1	YES	NO
at_	B121	07-086269	03/13/1995		- 	21/314		
18H	B122	08-181076	07/12/1996	JP	HØ1L	21/205		
111	B123	08-245291	09/24/1996	JP	СВОВ	25/14		
1/1H	B124	09-260786	10/03/1997	JP	HD1S	3/18	\boxtimes	
[Hb_	B125	09-293681	11/11/1997	JP	H01L	21 205	\square	
115	B126	10-188840	07/21/1998	JP	H01J	29 18	\boxtimes	
1/12	B127	10-190128	07/21/1998	JP	H01S	3/18	\boxtimes	
7115	B128	10-308283	11/17/1998	JP	нр5В	33/22	Ø	
11/2	B129	11-269652	10/05/1999	JP	C23C	16/44	\boxtimes	
1115	B130	2000-031387	01/28/2000	JP	HQ1L	27/04	\boxtimes	
Mo	B131	2000-058777	02/25/2000	JP	HQ1L	27/108	\boxtimes	
1/1/	B132	2000-068072	03/03/2000	JP	H05B	33/22		
TH	B133	2000-087029	03/28/2000	JP	COSK	11/08		
111	B134	2000-138094	05/16/2000	JP	H05B	33/10		
1/10	B135	2000-218445	08/08/2000	JP	B23P	6/00		
ME	B136	2000-319772	11/21/2000	JP	C23C	14/24		
ME	B137	2000-319772	03/28/2000	JP	C23C	16/00		
INT	B138	2000-340883	12/08/2000	JP	H01S	5/125		
At	B139	2000-353666	12/19/2000	JP .	H01L	21/205	Ø	
1/165	B140	2001-020075	01/23/2001	JP	C23C	16/44	Ø	
1/1/	B141	2001-152339	06/05/2001	JP	C23C	16/40	\boxtimes	
1.113	B142	2001-172767	06/26/2001	JP	C23C	16/40		
1116	B143	2001-189312	07/10/2001	JP	H01L	21/316		
1/11	B144	2001-217206	08/10/2001	JP	H01L	21/285		
1/1	B145	2001-220287	08/14/2001	JP	СЗОВ	25/02	Ø	
1/1	B146	2001-220294	08/14/200)	JP	C30B	29/20	/ Ø,	
Examiner		b14	under	1	Date Consi	· · · /	16/1	<u> </u>
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U.S. Department of Commerce, Patent a		Serial No.						
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SUPPLEMENTAL LIST OF PATENTS / CITED BY APPLICANT	AND PUBLIO		Applicant	1	Confirmation	n No.:		
	- (AFR 1 '	C 1700	Kori, et al.		Unknown			
(Use several sheets if necessary)	P. Arii	J. J	Filing Date	3	Group	\ <u>\</u>		
Examiner Unknown	n RAD	EMARKO	October 30,	2000	1/62	21		
Foreign Patent Documents								
*Examiner Document Number	Date	Country	Class	Subclass	Translati	on		
Number			<u> </u>		YES	NO		
B147 2001-240972	09/04/2001	JP	C2BC	16/458		\boxtimes		
B148 2001-254181	09/18/2001	JP .	C23C	16/46		X		
1/1- B149 2001-284042	10/12/2001	JP	но5В	33/04		\boxtimes		
B150 2001-303251	10/31/2001	JP .	C23C	16 44		\boxtimes		
B151 2001-328900	11/27/2001	JP	C30B	29 68		\boxtimes		
AZ B152 0 429 270 A2	05/29/1991	EP	G03F	7/36				
AE B153 99/13504	03/18/1999	wo	HQ1L	21/68		\boxtimes		
B154 01/15220	03/01/2001	wo (HOIL	21/768				
/ At B155 00/11721	03/02/2000	wo	HO L	29/43				
B156 90/02216 .	03/08/1990	WO	C23C	14/34				
B157 98/06889	02/19/1998	WO	D06F					
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U.S. Depart	U.S. Department of Commerce, Patent and Trademark Office 5 2002 Docket No. Serial No.								
(PTO Form	1449 n	nodified)	TC 1700	APPM/4714.P1	09/678,266				
SUPPLEME CITED BY		LIST OF PATENTS AND	PUBLICATIONS	Applicant /	Confirmation No.:				
OHED BY 7			01.6.8	Kori, et al.	Unknown				
(Use severa	l sheet	s if necessary)	APR 1 1 ZDVZ &	Filing Date	Group				
		Examiner Unknown		October 30, 2000	1202282+				
OTHER AR	T		TRADEMAR						
*Examiner Including Author, Title, Date, Pertinent Pages, Etc.									
Ohba, et al., "Thermal Decomposition of Methylhydrazine and Deposition Properties of CVD TiN Thin Films", Conference Proceedings, Advanced Metallization for ULSI Applications in 1993 (1994), pp. 143-149									
ME	C2		perature deposition of tita rials Science in Semicond						
m2	СЗ	Suzuki, et al., "A 0.2-µm resistivity", IEDM 92-979	contact filing by 450°C-hy 9, pp. 11.8.1 – 11.8.3	drazine-reduced TiN filr	n with low				
M	C4	Suzuki, et al., "LPCVD-T pp. 418-423	iN Using Hydrazine and T	iCl ₄ ", VMIC Conference	(June 8-9, 1993),				
1992	C5	IBM Tech. Disc. Bull. "Kr Control, (June 1990), pp	nowledge-Based Dynamic 80-84	Scheduler in Distributed	d Computer				
MZ	C6		ultiprocessor and Multitasi Tools" (May 1992), pp. 19		ol Control of the				
M	C7		is and properties of some metal complexes", Canad						
192	C8	Solanki, et al., "Atomic L State Letters, 3(10) (200	ayer deposition of Copper 0), pp. 479-480	Seed Layers", Electroc	hemical and Solid				
195	С9	NERAC.COM Retro Sea	rch: Atomic Layer Deposit	tion of Copper, dated Oc	ctober 11, 2001				
M	C10	NERAC.COM Retro Sea dated October 2, 2001	rch: Atomic Layer Deposit	tion / Epitaxy Aluminum	Oxide Plasma,				
116	C11		of "Atomic Layer deposition et al., J. Vac. Sci. & Tech		connect Diffusion				
146	C12	Abstracts of articles re a	tomic layer deposition						
C13 Abstracts of search results re atomic layer deposition, search dated January 24, 2002									
C14 Abstracts of articles re atomic layer deposition and atomic layer nucleation									
C18 Abstracts of articles re atomic layer deposition and semiconductors and copper,									
Examiner / Surely Started Date Considered \$16/1									
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant.									



U.S. Depart	lment o	of Commerce, Patent and Trademark Office 5 2002	Docket No.	Serial No.						
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		APRO 1 a mm 5	Kori, et al.	Unknown						
(Use severa	al sheet	ts if necessary)	Filing Date	Grøup						
Examiner Unknown Chapmark Control October 30, 2000 1762										
OTHER AR	T									
*Examiner Initial		Including Author, Title, Date, Pertinent Pages, Etc.								
OH	C16	Abstracts of articles – atomic layer deposition								
ME	C17	NERAC Search – Atomic Layer Deposition, search	n dated October 16, 200	1						
M	C18	Bader, et al., "Integrated Processing Equipment", 33, No. 5 (May 1, 1990), pp. 149-154	Solid State Technology,	Cowan Pub., Vol.						
MZ	C19	Choi, et al., "The effect of annealing on resistivity of low pressure chemical vapor depositied titanium diboride", J. Appl. Phys. 69(11) (June 1, 1991), pp. 7853-7861								
Mt	C20	Choi, et al., "Stability of TiB ₂ as a Diffusion Barrier on Silicon", J. Electrochem. Soc. 138(10) (October 1991), pp. 3062-3067								
M	C21	"Cluster Tools for Fabrication of Advanced devices" Jap. J. of Applied Physics, Extended Abstracts, 22 nd Conference Solid State Devices and Materials (1990), pp. 849 – 852 XP000178141 (ARTICLE ON ORDER – TO BE PROVIDED)								
ME	C22	"Applications of Integrated processing", Solid State No. 12 (December 1, 1994), pp. 45-47	Technology, US, Cowa	an Pub., Vol 37,						
At	C23	Kitigawa, et al., "Hydrogen-mediated low temperate chemical vapor deposition", Applied Surface Scient ORDER – TO BE PROVIDED)								
M	C24	Lee, et al., "Pulsed nucleation for ultra-high aspectinc. (2001), pp. 1-2 (ARTICLE ON ORDER – TO E		Novellus Systems,						
			<u> </u>							
<u> </u>			•							
		1 1								
Examiner		and, signific	Date Considered	6/2						
*EXAMINER citation if not	: Initial i	f reference considered, whether or not citation is in conformance and not considered. Include copy of this form w	rmance with MPEP 609; Dith your communication to	Praw line through applicant.						

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Approved for use through 10/31/2002. OMB 0851-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Complete if Known Substitute for form 1449A/PTO 09/678,866 **Application Number** FORMATION DISCLOSURE 10/03/2000 **Filing Date** ATEMENT BY APPLICANT First Named Inventor Ming Xi **Group Art Unit** (use as many sheets as necessary) **Examiner Name** 1 Sheet of Attorney Docket Number 4714P1/AMI-11

					U.S. P.	ATENT DOCUMEN	TS				
Examiner nitials*	Cite No.1		.S. Patent Documber	Kind Code ² (if known)		of Patentee or Applicant of Cited Document	Date of Put Cited Do MM-DD	cument ,		Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	
M	AJ.	4,058,4	30		Suntola et al.		11-15-19	77/		гідшез Арреаі	
Br	AK	4,389,9	73		Sunto	la et al.	06-28-19	83/			
1/2	AL	4,413,0	22		Sunto	la et al.	11-01-19	18/3	R	FOR	
777	AM	4,767,4	94		Kobay	ashi et al.	08-30-19	88		-UCIVE	7
126	AN	4,806,3	21		Nishiz	awa et al.	02-21-19	989	7	ECEIVE EC 0 4 2001 2 1700	_
146	AO	4,840,9	21		Matsu	moto	06-20-19	89		C 0 4 2002	
126	AP	4,845,0	49	171777777	Sunak	tawa	07-04-19	89		LUUI	7
146	AQ	4,859,6	27		Sunak	awa	08-22-19	89	- 77	1	1
145	AR	4,861,4	17		Mochi	zuki et al.	08-29-19	189		, 1700	1
1/AF	AS	4,876,2	18		Pessa	et al.	10-24-19	89			
1//	AT	4,993,3	57		Schol	z	02-19-19	91		· /	
114	AU	5,082,79	98		Arimo	to	01-21-19	92			
MY	AV	5,130,20	69		Kitaha	ra et al.	07-14-19	92			
146	AW	5,166,09	92		Mochi	zuki et al.	uki et al. 11-24-1992 07-06-1993				
47W	AX	5,225,30	56		Yoder				1 .		
MI	AY	5,250,14	48		Nishiz	Nishizawa et al. 10-		1993			
1/1/1	AZ	5,256,24	44		Acken	man	10-26-19	93	† <i>†</i>		
1/1/2	BA	5,270,24			Sakun	na et al.	12-14-19	93	· / 		
1/1/11	ВВ	5,278,43	35		Van H	ove et al.	01-11-19	94			
M	BC	5,281,27	74		Yoder		01-25-19	94			
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M	BD	5,290,748	1	Knuu	tila et al.	03-01-199	4		rigares repeat	
MI	BE	5,294,286		Nishia	awa et al.	03-15-199	14			_
14	BF	5,300,186	1	Kitaha	ara et al.	04-05-199	14			7
1/1	BG	5,316,793		Walla	ce et al.	05-31-199	14			/
145	ВН	5,330,610		Eres	et al.	07-19-199	14			
- 145	ВІ	5,336,324		Stall e	et al.	08-09-199	14		/	_
116	BJ	5,338,389			zawa et al.	08-16-199				
<i>778</i> 5	BK	5,395,791			g et al.	03-07-199	1		7	
/Has	BL	5,443,033		1	zawa et al.	08-22-199	1			
/ the	ВМ	5,458,084			e et al.	10-17-199	1			
	BN	5,480,818			imoto et al.	01-02-199				
124	ВО	5,484,664		Kitaha	ara et al.	01-16-199	16			
Z#6	BP	5,483,919	1	Yokoy	/ama et al.	01-16-199	16		/	
1/4	BQ	5,532,511		Nishiz	zawa et al.	07-02-1996		R	50	
//	BR	5,637,530	Gaines et al. 06-10-1997		7	- 7 1	FCFILE	_		
///	BS	5,693,139	<u> </u>	Nishiz	zawa et al.	12-02-199	7	1		T
	BT	5,705,224	1	Murot	a et al.	01-06-199	8	/ U	ECEIVE EC 0 4 2001	U
1/1	BU	5,711,811	<u> </u>	Sunto	la et al.	01-27-199	8	1-	2001	
20	BV	5,730,802	-	. Ishizu	mi et al.	03-24-199	8	Tr	1	
MA	BW	5,851,849		Comiz	zzoli et al.	12-22-199	8 /		1700	
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INFORMATION DISCLOSURE	Filing Date	10/03/2000		
STATEMENT BY APPLICANT	First Named Inventor	Ming Xi		
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ani	_	Klaus et al. Atomically controlled growth of tungsten and tungsten nitride using						
675	CN	sequential surface reacions, Applied Surface Science, pp. 479-491(2000).						
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First Named Inventor	Ming Xi	/

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AB 5,443,647 Aucoin et al. 08-22-1995 AC 5,374,570 Nasu et al. 12-20-1994 AD 5,173,474 Connell et al. 12-22-1992 AE 5,028,565 Chang et al. 07-02-1991 AF 5,972,430 DiMeo, Jr. et al. 10-26-1999 AG 5,916,365 Sherman 06-29-1999			Number Kind Co	Name of Patentee or Applicant of Cited Document	Cited Document	Where Relevant Passages or Relevant
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AG 5,916,365 Sherman 06-29-1999	/ /	ΑE	5,028,565	Chang et al.	07-02-1991	
	Mb	AF	5,972,430	DiMeo, Jr. et al.	10-26-1999	
09/625,336 Kori et al. 07-25-2000	M	AG	5,916,365	Sherman	06-29-1999	
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	1AH	A1	4,813,846	03/21/89		414	744.1	04/29/87
	ME	A2	4,917,556	04/17/90	Stark et al.	414	217	05/26/89
	1076	# 34	4;951;601	108/28/90	Mayoringo in	_1		1 (05/28/89) m rankon eta in
	The second in	A4	5,000,113	03/19/91	Wang et al.	118	723	12/19/86
	Mt	A5	5,186,718	02/16/93	Tepman et al.	29	25.01	04/15/91
	'MT	A6	5,205,077	04/27/93	Wittstock	51	165 R	08/28/91
4.1	OFT.	A7	5,234,561	08/10/93	Randhawa et al.	. 204		
	1022	A8	5,259,881	11/09/93	Edwards, et al.	118	719	05/17/91
	1976	A9	5,286,296	02/15/94	Sato et al.	118	719	01/09/92
	Oft.	A10	5,609,689	03/11/97	Kato et al.	118 .	719	06/03/96
[1 St	A11	5,667,592	09/16/97	Boitnott et al.	118	719	04/16/96
	1th	A12	5,674,786	10/07/97	Turner et al.	437	225	06/05/95
	OH	A13	5,695,564	12/09/97	Imahashi	118	719	08/03/95
	THE	A14	5,730,801	03/24/98	Tepman et al.	118	719	08/23/94
	1At	A15	5,788,447	08/04/98	Yonemitsu et al.	414	217	08/05/96
	116	A16	5,788,799	08/04/98	Steger, et al.	156	345	06/11/96
L	1H	A17	5,801,634	09/01/98	Young et al.	340	635	09/08/97
	(H	A18	5,856,219	01/05/99	Naito et al.	438	241	08/18/97
L	/H	A19	5,866,213	02/02/99	Foster et al.	427	573	07/19/97
L	1HC	A20	5,866,795	02/02/99	Wang et al.	73	1.36	03/17/97
L	(SHE	A21	5,882,165	03/16/99	Maydan et al.	414	217	09/10/97
L	X ##	A22	5,882,413	03/16/99	Beaulieu et al.	118	719	07/11/97
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(DA).	A24	6,051,286	04/18/00	Zhao et al.	427	576	Appropriate 08/22/97				
	25.0	6.662.798	04/16/00	Muka Care		418	08/18/96 1				
n	- A26	6,071,808	06/06/00	Merchant et al.	438	633					
mz	A27	6,084,302	07/04/00	Sandhu	- 	 	06/23/99 12/26/95				
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BI	A29	6,110,556	08/29/00	Bang, et al.	428	.64.1	-06/16/98				
111	A30	6,117,244	09/12/00	Bang, et al.	118	715	10/17/97				
12	A31	6,140,237	10/31/00	Chan et al.	438	687	03/24/98				
1819 pris 1 2 deli-11		6,140,238	10/31/00	Kitch	438	687	04/19/99				
M	A33	6,143,659	11/07/00	Leem	438	688	08/27/98				
12	A34	6,144,060	11/07/00	Park et al.	257	310	07/31/98				
195	A35	6,158,446	12/12/00	Mohindra et al.	134	25.4	09/04/98				
100	A36	6,206,967	03/27/01	Mak, et al.	118	666	06/14/00				
177	A37	6,271,148	08/07/01	Kao et al.	438	727	10/13/99				
122	A38	2001/0041250	11/15/01	Werkhoven et al.	428	212	03/06/01				
1012	7.00		11/13/01	vverknoven et al.	420	212	03/06/01				
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	U.S. Department of Commerce, Patent and Trademark Office Docket No. Serial No.										
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•	·		· · · · · · · · · · · · · · · · · · ·	Kori, e	t al.	` `	Unknown				
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.,,,	10-77	24			170	10		YES	NO.		
-11	1017	B2	58-09891Y-			HOIL	21/205				
ł	100		58-100419	06/15/1983		H01L	21/20	\boxtimes			
		B3	61-035847	02/20/4986	and the state of t		4908				
Ŧ	1732		61210625	09/18/1986	JP	Hq1L	21 205				
ł	1996	B5	62-069508	03/30/1987	JP	HQ1L	21/203	\boxtimes			
┞	100	B6	62-141717	06/25/1987	JP	HQ1L	21/203	☒ .			
	(192	B7	62-167297	07/23/1987	ு ந்துள்ளனன்ன கள்ள	C30B		t. 🔯			
-	1012	B8	62-171999	07/28/1987	JP	C30B	29/40	\boxtimes			
\mid	M.	B9	62-232919	10/13/1987	JP .	HQ1L	21/205	\boxtimes			
1	15	B10	63-062313	03/18/1988	JP	HOIL	21/203				
L	(It	B11	63-085098	04/15/1988	JP	C30B	21/40	\boxtimes			
L	(012	B12	63-090833	04/21/1988	JP	HQ1L	21/365	Ø			
L	(At	B13	63-222420	09/16/1988	JP	HQ1L	21/205	\boxtimes			
L	BIL	B14	63-222421	09/16/1988	JP	H01L	21/205		片		
L	Oft	B15	63-227007	09/21/1988	JP	H01L	21/205	\boxtimes	 		
_	() + +	B16	63-252420	10/19/1988	JP	H01L	21/205				
	(It	B17	63-266814	11/02/1988	JP	HQ1L	21/205	\boxtimes	귀		
	at	B18	64-009895	01/13/1989	JP	C30B	29/40		뉘		
Ц	Att	B19	64-009896	01/13/1989	JP	СЗОВ	29/40	\boxtimes	귀		
1	H	B20	64-009897	01/13/1989	JP	C30B	29/40		 		
	At.	B21	64-037832	02/08/1989	JP	HOLL	21/205	\boxtimes	H		
	Oft	B22	64-082615	03/28/1989	JP	H01L	21/205		H		
	1Ht	B23	64-082617	03/28/1989	JP	H01L	21/205		旹		
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			nt of Commerce, Pate	ent and Tra	dema	irk Office	01	Docket N	10.		Serial No).	_
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ŀ	(It	B28	01-103996	04/21/19	89	JP		C30B	29/40	$\overline{}$			7
ŀ	(At	B29	01-117017	05/09/19	89	JP		HO1L	21/20				+
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L	15	B33	01-236657	09/21/19	89	JP		101L	29/80				$\left\{ \right.$
L	(15	B34	01-245512	09/29/19	89	JP ·		101L	21/20			 	l
L	At.	B35	01-264218	10/20/19		JP		101L	21/20		<u> </u>		l
(ME	B36	01-270593	10/27/19		JP		30B	25/02	-			
	The	B37	01-272108	10/31/198		JP		101L	21/203	,			
	(At	B38	01-290221	11/22/198		JP		OIL	21/20				
_	At	B39	01-290222	11/22/198		JP		OIL	21/205				
(At	B40	01-296673	11/30/198		JP		diL	29/88	<u> </u>		<u> </u>	
	116	B41	01-303770	12/07/198		JP		O1L	39/24			믜	
7	Mt.	B42	01-305894	12/11/198		IP	-	30B				믜	
7	M	B43	01-313927	12/19/198		IP	+-	91L	23/08		\boxtimes	믜	
7	/H	B44	02-012814	01/17/199		P	-)1L	21/205				
	/At	B45	02-014513	01/18/199		P)1L	21/205			ᆜ	
	112	B46	02-017634	01/22/199		<u>.</u> Р			21/205			므니	
7	M	B47	02-063115	03/02/199	- 	<u>г</u> Р	+)1L	21/225		\boxtimes	믜	
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SUPPL	U.S. Department of Commerce, Patent and Trademark Office (PTO Form 1449 modified) SUPPLEMENTAL LIST OF PATENTS AND PUBLICATIONS CITED BY APPLICANT							et No. 1/4714.P1	્યા માર	Serial No. 100			
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	B4	9 02-074587	And the second s	Military Interesting		ž'n				YÉS	- CHESTON CONTRACT		
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1	B55	12 100032	08/02/1990) JP			30B			\boxtimes	1-		
//		32 200517	08/13/1990) JP)1L		dia milit	illi- illi	1. h ###		
20	B56	02-230690	09/13/1990	JP		-	5B	21/205		\boxtimes			
190	B57	02-230722	09/13/1990	JP				33/10		\boxtimes			
XX-	B58	02-246161	10/01/1990	JP		HO	<u> </u>	21/205	· ·	\boxtimes			
7	B59	02-264491	10/29/1990			HO		29/784		\boxtimes			
150	B60	02-283084	11/20/1990	JP		HO		3/18		\boxtimes			
ME	B61	02-304916	12/18/1990	JP		HON		3/18		\boxtimes			
Ht	B62	03-019211	01/28/1991	JP		Hdi		21/205		\boxtimes			
Att	B63	03-022569	01/30/1991			Hd1		21/205		X			
艺	B64	03-023294	01/31/1991	JP		1011		29/804	1	X			
12	B65	03-023299	01/31/1991	JP		301	B	25/18		X	一		
	B66	03-044967	02/26/1991	JP		301	3	29/40		3	님		
72		03-070124	03/26/1991	JP	H	<u>1</u>		29/48		3	금		
22-1		03-185716		JP	Н	d1L		21/205	D		퓜		
172		03-208885	08/13/1991	JP	Н	d1L		21/205	<u> </u>		님		
2 1	100	03-234025	09/12/1991	JP	C	30B		23/02	<u> </u>		H		
77 E		3-286522	10/18/1991	JP	Н	TIP		21/318			H		
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		B75		04/1	3/1992	d Paradicas	de september 1	(41 L	2	1/205			
-	177	B76	04-132214	05/0	6/1992	JP	ŀ	101L	2	1/205	Ø		
ŀ	(M)	B77	04-132681	05/0	61992	JP	C	30B	2	5/14			
-	117	B78	04/151822	05/2	5/1992	JP	F	IØ1L	2	/205			
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-	JOIL	B80	04-175299	06/23	3/1992	JP	C	30B	29	/68	×		
<u> </u>	(A)t	B81	04-186824	07/03	3/1992	JP	Н	01L	21	/205	\boxtimes	$\overline{\Box}$	
	LITE	B82	04-212411	08/04	/1992	JP · ·	Н	01L	21	/203	· · 🛛		
-	(1-15)	B83	04-260696	09/16	/1992	JP	С	30B	29	/40	\boxtimes		
L	At	B84	04-273120	09/29	/1992	JP	Н	1L	21	20	\boxtimes		
L	SIT	B85	04-285167	10/09	/1992	JP	С	23C	14	/54	\boxtimes		
L	CHE.	B86	04-291916	10/16	/1992	JP	Н	1L	21	/205	\boxtimes	計	
L	(1)	B87	04-325500	11/13	/1992	JP	C	ОВ	33	/00	\boxtimes	ਜ਼	
L	It	B88	04-328874	11/17	/1992	JP	Н	1L	29	/804	\boxtimes	T	
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L	It	B92	05-047668	02/26/	1993	JP	Н	1L		205		눼	
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APR 1 5 2002 U.S. Department of Commerce, Patent and Trademark Office Docket No. Serial No. 00 PPM/4714.P1 (PTO Form 1449 modified) 09/678,266 SUPPLEMENTAL LIST OF PATENTS AND PUBLICATION **Applicant** CITED BY APPLICANT Confirmation No.: Kori, et al. Unknown (Use several sheets if necessary) Filing Date Group TRADEMARY Examiner Unknown October 30, 2000 1762 **Foreign Patent Documents** *Examiner **Document** Date. Country Class 大田田田 **Eubclassa anna Translation iii** avomber YES NO **B97** 05-175143 07/13/1993 JP HQ1L 21/205 Ø イで乗り898 (編集 485-176145 JP The said of 時やリナバスパラジオ HOH 21/205 سه ⊠يش **B**99 05-182906 07/23/1993 JP. Hd1L 21/20 図 B100 05-186295 07/27/1993 JP C30B 25/b2 Ø П **B101** 05-206036 08/13/1993 JP Hd1L 21/205 冈 B102 05-234899 .09/10/1993 ... JPagente ... interessibilities HØ1L 21/205 X B103 05-235047 09/10/1993 JP HØ1L 21/838 Ø П B104 05-251339 09/28/1993 JP HD1L 21/20 \boxtimes B₁₀₅ 05-270997 10/19/1993 JP CB0B 29/68 冈 П **B106** 05-283336 10/29/1993 JP Hb1L 21/2to Ø B107 05-291152 11/05/1993 JP H01L 21/2b5 X **B108** 05-304334 11/16/1993 JP H₀₁L 3/18 冈 **B109** 05-343327 12/24/1993 JP H₀₁L 21/205 冈 **B110** 05-343685 12/24/1993 JP HO1L 29/784 X \Box **B111** 06-045606 02/18/1994 JP H01L 29/784 冈 B112 06-132236 05/13/1994 JP H01L 21/205 冈 **B113** 06-177381 06/24/1994 JP H01L 29/784 Ø П **B114** 06-196809 07/15/1994 JP HD1S 3/18 冈 **B115** 06-222388 08/12/1994 JP Gb2F 1/136 冈 П **B116** 06-224138 08/12/1994 JP HQ1L 21/205 Ø **B117** 06-230421 08/19/1994 JP G02F 1/136 X П **B118** 06-252057 09/09/1994 JP HOIL 21/205 冈 П B119 07-070752 03/14/1995 JP C23C 16/40 図 П **B120 07**-086269 03/13/#995 JP H01L 21/314 \boxtimes Examiner **Date Considered**

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ŀ	1/12	B127		07/21/1998		H01J	29/18	\boxtimes	
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t	1711	B129	10-308283	11/17/1998	· · · · · · · · · · · · · · · · · · ·	Barda H05B	.33/22 · arisite	المارية	- G-1812
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-	1 Mi	B130	2000-031387	01/28/2000	JP	HOIL	27/04	\boxtimes	計
┝	1/1/12	B131	2000-058777	02/25/2000	JP	HOL	27/108	. 🗵	一
┝	ATT	B132	2000-068072	03/03/2000	JP .	H05B	33/22	\boxtimes	님
-	m	B133	2000-087029	03/28/2000	JP	COSK	1 /08	$\overline{\boxtimes}$	H
\vdash	1/1/2	B134	2000-138094	05/16/2000	JP	H05B	33/10	\boxtimes	片
Ľ	11/25	B135	2000-218445	08/08/2000	JP	B23P	6/00	\boxtimes	금
	150	B136	2000-319772	11/21/2000	JP	C2BC	14/24		
_		B137	2000-319772	03/28/2000	JP	C23C	16/00	\boxtimes	
	11/6	B138	2000-340883	12/08/2000	JP	HQ1S	5/125	×	H
_	The	B139	2000-353666	12/19/2000	JP .	HO1L	21/205	\boxtimes	H
7	11/20	B140	2001-020075	01/23/2001	JP	C23C	16/44		귀
	115	B141	2001-152339	06/05/2001	JP	C23C	16/40		H
4	High.	B142	2001-172767	06/26/2001	JP	C23C	16/40		旹
Z	15	B143	2001-189312	07/10/2001	JP	HD1L	21/3 6	⊠	
4	Hay	B144	2001-217206	08/10/2001	JP	H01L	21/285		
4	1	B145	2001-220287	08/14/2001	JP	C30B	25/02	\boxtimes	
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	B147	2001 ₅ 240972	WWW.09/04/20014				YES	
AX	B148	2001-254181	09/18/2001	JP	C23C	16/458		111
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	B151	2001-328900	11/27/2001	JP	C23C	16/44		
At	B152	0 429 270 A2	05/29/1991	EP	Свов	29/68		1
AL	B153	99/13504	03/18/1999	WO	GD3F	7/36		[
DE	B154	01/15220	03/01/2001	WO	HD1L	21/68 Game at	INC. INC. INC. INC.	-11 15
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H	C4	Suzuki, et al., "LPCVD-Til pp. 418-423	N Using Hydrazine and Ti	Cl ₄ ", VMIC Conference	(June 8-9,:1993); ::					
h)2	C5	IBM Tech. Disc. Bull. "Knowledge-Based Dynamic Scheduler in Distributed Computer Control, (June 1990), pp. 80-84								
2	C6···	IBM Tech. Disc. Bull. "Multiprocessor and Multitasking Architecture for Tool Control of the Advanced via Inspection Tools" (May 1992), pp. 190-191								
H	C7	McGeachin, S., "Synthesis and properties of some β-diketimines derived from acetylacetone, and their metal complexes", Canadian J. of Chemistry, Vol. 46 (1968)								
22	C8	Solanki, et al., "Atomic La State Letters, 3(10) (2000	yer deposition of Copper 3	Seed Layers", Electroch	emical and Solid					
HE	C9	NERAC.COM Retro Searc	ch: Atomic Layer Deposition	on of Copper, dated Oct	ober 11, 2001					
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6	C11	NERAC Search abstract o Barriers", by Rossnagel, et	f "Atomic Layer deposition t al., J. Vac. Sci. & Tech.,	n of Ta and Ti for Interco 18(4) (July 2000)	onnect Diffusion					
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	N	C18	Bader, et al. Integrated Processing Equipment 33, No. 5 (May 1, 1990), pp. 149-154	Solid State Technology	Cowan Pub.#Vol.##
	MZ	C19	Choi, et al., "The effect of annealing on resistivity titanium diboride", J. Appl. Phys. 69(11) (June 1, 1	of low pressure chemical 991), pp. 7853-7861	vapor depositied
	M	С20 Биннікани	Choi, et al., "Stability of TiB2 as a Diffusion Barrier		em. Soc. 138(10)
	M	C21	"Cluster Tools for Fabrication of Advanced devices Abstracts, 22 nd Conference Solid State Devices an XP000178141 (ARTICLE ON ORDER – TO BE P	s" Jap. J. of Applied Phys	ion Extended
	M	C22	"Applications of Integrated processing", Solid State No. 12 (December 1, 1994), pp. 45-47		n Pub., Vol 37,
	At	C23	Kitigawa, et al., "Hydrogen-mediated low temperate chemical vapor deposition", Applied Surface Scien ORDER – TO BE PROVIDED)	ure epitaxy of Si in plasm ce (2000), pp. 30-34 (AR	a-enhanced TICLE ON
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First Named Inventor	Ming Xi
Group Art Unit	Unassigned 2823
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	- AA	5,879,		Gadgil et al.	03-09-1999	Figures Appear
Z	AB	5,443,		Aucoin et al.	08-22-1995	
1	AC	5,374,		Nasu et al.	12-20-1994	
KID.	AD	5,173,		Connell et al.	12-22-1992	
1XII	AE	5,028,		Chang et al.	07-02-1991	·
<i>4 183</i>	AG	5,972,		DiMeo, Jr. et al.	10-26-1999	· · · · · · · · · · · · · · · · · · ·
100	 ~	5,916, 09/625,		Sherman	06-29-1999	
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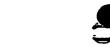
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M	АЗ	4,834,831	05/30/89	Nishizawa et al	1.	156	611	(09/04/19	87
156	A4	4,838,983	06/13/89	Schumaker et al.		156	613		03/18/19	88
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At	A6	4,859,625	08/22/89	Nishizawa et al	1.	437	81	1	11/20/19	87
176	A7	4,927,670	05/22/1990	Erbil		427	255.3	7	06/22/19	88
175	A8	4,931,132	06/05/90	Aspnes et al.		156	601	1	10/07/19	88
1/6	A9	4,960,720	10/02/90	Shimbo		437	105	7	08/24/19	87
196	A10	4,975,252	12/04/90	Nishizawa et al		422	245	(05/26/19	B9
the	A11	5,013,683	05/07/91	Petroff et al.		437	110	(01/23/19	89
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X/6	B2	01/40541 A1	06/07/2001	wo	С	23C	16/40			X
115	B3	01/36702 A1	05/25/2001	wo	C	23C	16/00			X
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LIST OF	PATEN	ITS AND PUBLICAT	TIONS CITED E	BY APPLICANT		Applica	ınt		-	\$ _	\neg
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U.S. Pate	nt Doc	uments							-	1>0	2
*Examiner Initial		Document Number	Issue Date	Applicant(s) Name		Class	Subclass		Filing Date If Appropriate		7
(H)	A14	5,246,536	09/21/93	Nishizawa et al	i.	156	610	0	3/10/1	989	
me	A15	5,254,207	10/19/93	Nishizawa et al	l.	156	601	1	1/30/1	992	
100	A16	5,296,403	03/22/94	Nishizawa et al	l.	437	133	1	0/23/1	992	
A single state	A17	5,311,055	05/10/94	Goodman et al	u u	257	593	1	1/22/1	991	
176	A18	5,316,615	05/31/94	Copel		117	95	0	3/09/1	993	
1/66	A19	5,348,911	09/20/94	Jurgensen et al	I.	117	91	0	4/26/19	993	
116	A20	5,374,570	12/20/94	Nasu et al.],	437	40	0	B/19/19	993	\Box
176	A21	5,438,952	08/08/1995	Otsuka		117	84	01/31/1994			\Box
125	A22	5,439,876	08/08/95	Graf et al.		505	447	08/16/1993			
/px	A23	5,441,703	08/15/95	Jurgensen		422	129	0	03/29/1994		
1/26	A24	5,443,647	08/22/95	Aucoin et al.		118	723 ME	0	07/11/1994		
1/25	A25	5,455,072	10/03/95	Bension et al.	[427	255.7	1	1/18/19	992	
do	A26	5,469,806	11/28/95	Mochizuki et al.		117	97	01	3/20/19	993	
	A27	5,503,875	04/02/96	lmai et al.	4	427	255.3	0:	3/17/19	994	
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OTHER A	RT										\Box
*Examiner Initial)		Including Author, Title	 	· ·							
Ht.	C3	Yamaguchi, et al., "Ator content", Appl. Surl. Sc.	i., Vol. 130-132 (19	998), pp. 202-207.							
4/4	C4	George et al., "Surface	21 / 12	$\overline{}$	$\overline{}$			96),	ppr 131	21-131.	_
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Examiner Initial		Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Da			
(M)	A28	5,521,126	05/28/96	Okamura et al.	437	235	06/22/19	94		
196	A29	5,527,733	06/18/96	Nishizawa et al	. 437	160	02/18/19	94		
M	A30	5,540,783	07/30/96	Eres et al.	118	725	05/26/19	94		
	A31	.5,601,651	02/11/97	Watabe	118	7.15	12/14/19	94		
194	A32	5,616,181	04/01/97	Yamamoto et al.	118	723 ER	11/21/19	95		
THE	A33	5,641,984	06/24/97	Aftergut et al.	257	433	08/19/19	94		
114	A34	5,644,128	07/01/97	Wollnik et al.	250	251	08/25/19	94		
M	A35	5,707,880	01/13/98	Aftergut et al.	437	3	01/17/19	97		
126	A36	5,747,113	05/05/98	Tsai	427	255.5	07/29/19	96		
186	A37	5,749,974	05/12/98	Habuka et al.	118	725	07/13/19	95		
1 Ato	A38	5,796,116	08/18/98	Nakata et al.	257	66	07/25/19	95		
14	A39	5,807,792	09/15/98	Ilg et al.	438	758	12/18/19	96		
114	A40	5,830,270	11/03/98	McKee et al.	117	106	08/05/19	96		
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Examiner			Date	Country	Class	Subclass	Trans	ation		
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THE	B12	00/63957 A1	10/26/2000	wo	HONL	21/205	1	X		
THER A	RT									
Examiner nitial		Including Author, Tit	le, Date, Pertiner	nt Pages, Etc.						
TH	C5	George, et al., "Atom sequence chemistry					3binary rea	ection		
H	C6	Wise, et al., "Diethyle Syrpp.) Proc., Vol./33	diethoxysilane as	a new precursor (for SiO₂ g	rowth on silicor	n", Mat. Res.	Soc.		
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U.S. Depart	iment o	f Commerce, Pa	tent and Trade	emark -Office=	=	Docke	t No.		Serial	No.	
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Att	A41	5,835,677	11/10/98	Li et al.	-	392	401	- 1	0/03/19	996	
11/16	A42	5,855,675	01/05/99	Doering et	al.	118	719	• 0	3/03/19	997	
YH.	A43	5,858,102	01/12/99	Tsai		118	719		2/14/19	98	
(DH)	A44	5,879,459	03/09/99	Gadgil et a	ıl.	118	715	. 0	8/29/19	397	
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114	A46	5,916,365	06/29/99	Sherman		117	92	0	8/16/19	996	
Max	A47	5,923,056	07/13/99	Lee et al.		257	192	C	3/12/19	98	
974	A48	5,923,985	07/13/99	Aoki et al.	· · · · · · · · · · · · · · · · · · ·	438	301	C	1/14/19	97	
THE.	A49	5,925,574	07/20/99	Aoki et al.		437	′31	C	04/10/1992		
1214	A50	5,942,040	08/24/99	Kim et al.		118 726		C	08/27/1997		
1/1/	A51	5,947,710	09/07/1999	99 Cooper, et al.		418	63	C	6/16/19	97	
78	A52	5,972,430	10/26/99	DiMeo, Jr.	et al.	427	255.32	1	1/26/19	97	
THE	A53	6,001,669	12/14/99	Gaines et al.		438	102	O	07/21/1992		
114	A54	6,174,377	01/16/2001	Doering, et	al.	118	729	0	1/04/19	99	
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(V)	A55	6,174,809	01/16/2001	Kang, et al.							
	A56	6,203,613	03/20/2001	Gates, et al.	\dashv	117	\dashv	104	\dashv	10/19/19	
	A57	6,207,302	03/27/2001	Sugiura, et al.	4	428	\dashv	690		03/02/19	
intention of the transmit	A58	6.248,605	06/19/2001	Harkonen, et.al.		438	hulle	29	$\overline{}$		99
18	A59	6,270,572	08/07/2001	Kim, et al.	\dashv	117		93	\dashv	08/09/19	
	A60	6,287,965	09/11/2001	Kang, et al.	\dashv	438		648	-+	02/23/20	
	A61	6,291,876	09/18/2001	Stumborg, et al.	4	257	_	632	_	08/20/1998	
125	A62	6,305,314 10/23/2001 Sneh, et al. 118 723 R					12/17/1999				
1 Sty	A63	6,306,216	10/23/2001					\perp	07/12/20	00	
The	A64	6,316,098	11/13/2001	Yitzchaik, et al.		428		339		03/23/1999	
. / 1	`A65	2001/0000866	05/10/2001	Sneh, et al.		118		723 R 11/29		11/29/20	00
PA	A66	2001/0009140	07/26/2001	Bondestam, et al.		118		725		01/25/20	01
THE	A67	2001/0011526	08/09/2001	Doering, et al.		118		729		01/16/20	01
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115	B18	96/17107 A1	06/06/1996	wo	C	553C	1644		X
	B19	93/02111 A1	02/04/1993	wo	C	98F	4/18		X
	B20	0 442 490 A1	08/21/1991	EP	C	ВОВ	25/02		X
1/1	B21	0 344 352 A1	12/06/1989	EP		101L	39/24		Х
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M	C11	Min, et al., "Metal Physics Letters, I	-Organic Atomi American Inst. (c-Layer Deposition of Physics, Vol 7	on of 1 5(11) (Titanium (Sept. 1	-Silicon-Nitride 3, 1999).	Films", A	plied
1 Rt	C12	Martensson, et al (Feb. 1, 1997), pr	., "Atomic Laye , 45-50.	r Epitaxy of Copp	per on	Tantalu	m", <i>Chemical</i>	Vapor Dep	osition, 3(1)
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	B23	60-065712 A	04/15/1985	JP	CQ1	В	33/1/13	,	X		
//	B24	03-048421	03/01/1991	JP.	Hq1	L	21/302		Х		
M	B25	03-286531	12/17/1991	JP	Hq1	L	21/316		X		
1/14	B26	04-031396 A	02/03/1992	JP	C30)B	25/14		X		
	B27	06-291048	10/18/1994	JP	HQ1	L	21/205		, X		
	B28	08-264530	10/11/1996	JP	Нф1	L	21/3205		X		
1/1	B29	11-269652	10/05/1999	JP	C23	3C	16/14		X		
OTHER AR	T						/				
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*/Att.	C13	Ritala, et al. "Ato 1995), pp. 2731-		xy Growth of TiN Th	in Filn	ns", <i>J</i> .	Electroche	n. Soc.,	142(8) (Aug.		
THE	-C14	Elers, et al., "Nb 468-474.	C15 as a precur	sor in atomic layer e	pitaxy	r, App	ol. Surf. Sci.,	Vol. 82	/83 (1994), pp.		
/1/12	C15			m-Based Thin Film b (Mar. 1999), pp. 69		D Usin	g Titanium	Chloride:	as Precursors",		
M.	C16	Martensson, et a Tetramethyl-3, 5 2931.	al., "Atomic Laye -Heptanedion A	r Epitaxy of Copper, TE/H2/Process", J. I	Grow Electro	vth & S ochem	Selectivity in a. Soc. ,145(the Cu (8) (Aug.	II)-2,2.6,6- 1998), pp. 2926-		
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V//	B31	198 20 147	07/01/1999	DE	HØ1L	21/3205		X	
1921	B32	196 27 017	01/09/1997	DE	HD1L	21/283		X	
1 24	B33	2 626 110	07/21/1989	FR	HD1L	39/24		X	
114	B34	2 692 597	12/24/1993	FR	C23C	16/00		X	
2/21	B35	2 355 727	05/02/2001	GB	C23C	16/44		X	
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*Examiner		Including Auth	or, Title, Date, I	Pertinent Pages, Etc	•				
Initial	C17	Min. et al.,"Ch	emical Vapor D	eposition of Ti-Si-N	Films with A	Alternating So	urce Supply",	Mat., Res.	
MA		Soc. Symp. P	<i>roc.</i> , Vol. 564 (A	.pr. 5, 1999), pp. 20 <i>i</i>	7-210				
Maria	C18	Bedair, "Atom	ic layer epitaxy	deposition processe	s", J. Vac.	SCI. 1 ecnoi. 1	m in a low-po	ecure	
[/K#	C19	metalorganic	Yamaga, et al., "Atomic layer epitaxy of ZnS by a new gas supplying system in a low-pressure metalorganic vapor phase epitaxy", <i>J. of Crystal Growth</i> 117 (1992), pp. 152-155						
PA	C20	E	Flam, et al., "Nucleation and growth during tungsten atomic layer deposition on SiO2 surfaces," Thin Solid Films 386 (2001) Pages 41 – 52, (Accepted Dec. 14, 2000).						
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